INDEX TO SURGICAL PROGRESS.

HEAD.

I. Empyema of the Sphenoid and Intracranial Complications. By DR. KANDER (Carlsruhe). To account for the obscure cases of meningitis, sufficient cognizance is not taken of the accessory cavities of the nose, and particularly does this obtain with the sphenoidal sinus and its relation to the cavernous sinus.

While the number of reported cases of empyema of the sphenoidal sinus is very small, yet this is not in accord with post-mortem findings. Thus, Wertheim found in 360 cadavers empyema of the sphenoidal sinus thirty-five times. The etiological factors in every instance were one of the acute or chronic infectious diseases; in the first place, particularly pneumonia, scarlet fever, and diphtheria. Tuberculosis markedly predisposes to sinus disease. It was not to be ascertained whether the infection spread from an acute rhinitis or whether it started anew in the sinus itself.

Three personal experiences are recounted, the first in a female afflicted with pneumonia. On the tenth day, in addition to severe cerebral symptoms, there were pain and rigidity in the neck, œdema of the lids and half of the face; diminished vision. The papilla of the optic nerve was hazy and the veins distended, and when finally exophthalmos set in, the diagnosis of thrombosis of the cavernous sinus was only too evident. The pneumonic infiltration persisted to the end. Operation was refused. The rhinoscopic examination had shown nothing, but the post-mortem revealed a bilateral empyema of the sphenoidal sinuses, thrombophlebitis of the lateral sinus, and purulent meningitis.

The second patient, a male, with a decided family history of tuberculosis and personally afflicted with "catarrh of the apex,"

had a severe coryza for four weeks, associated with a free discharge of pus from the right half of the nose. Suddenly rigidity of the neck set in with high fever, congestion of the right eyelids and bulb, with profuse lachrymation. A marked protrusion of the bulb was perceptible. Rhinoscopy showed deviation of the septum to the right; hypertrophy and tumefaction of the middle turbinated with free pus in the middle meatus of the right side. Patient otherwise markedly septic and great tenderness upon percussion of the frontal bone. This latter sign determined the diagnosis as frontal sinusitis. An operation for the relief of this failed to find the cause, and the patient's condition did not warrant search for the pus in the sphenoidal sinus, which was then suspected. Post-mortem examination brought to light a basilar meningitis; a collection of pus in the sella turcica; the right sinus cavernosa thrombosed, a perforation of the sphenoidal sinus itself containing pus.

In the third instance a bullet lodged in the sphenoidal sinus had caused suppurative signs.

The thrombophlebitis is brought about either by contiguity of inflammation of the bone to the cavernous sinus or infection is carried by the emissary veins, or finally by the lymph channels. Abscesses were always extradural.

The diagnosis is determined by the severe frontal headaches and rhinoscopic findings, and, when the cavernous sinus is thrombosed, by the additional disturbance in the ocular circulation. Where the conditions warrant it, the middle turbinated bone may be resected to aid in establishing the diagnosis.

Operation.—A resection and dilatation of the ostium may establish sufficient drainage, and if not, the frontal sinus is opened and through it the sphenoidal sinus can be reached. The posterior wall of the frontal sinus is removed and the endeavor made to locate extradural collections of pus.—*Beiträge zur klinischen Chirurgie,* Band xxxvi., Heft 1.

MARTIN W. WARE (New York).

ABDOMEN.

I. The Question of Drainage after Abdominal Operations. By PROFESSOR R. OLSHAUSEN. Olshausen gives his reasons for practically abandoning drainage after abdominal operations, and compares his results with those of operators who disagree with him. In the last twenty years the author has only used tampons for hæmostasis or drainage five times. Operators, as a rule, use the tampon to prevent general peritonitis after the removal of infectious foci under the following circumstances:

(1) If during operation pus has escaped into the belly cavity.

(2) If remnants of tumors or abscess membrane are left *in situ*.

(3) In cases of penetrating injuries to the gut or bladder.

(4) If material has escaped into the belly cavity of a nature to form a good culture medium.

During the past six years the author has performed 1555 laparotomies, of which 114 (7½ per cent.) were severe, and in none did he drain.

The death-rate was higher than it ought to have been because of accidents (embolism, perforation of stomach), and yet was no greater than that of surgeons, *e.g.*, Schauta, who drain.

The only real danger is in cases of recent peritonitis with multiple suppurative lesions, and in those of intestinal injuries. The history after operations in pus cases (generally pyosalpinx) was often one without fever or reaction. The gonococci in tubal pus are relatively harmless and lose their virulence when the disease has lasted nine to twelve months. Microbes which wander from the intestines, in cases of ovarian abscess and suppurating tumors, are more malignant. The most malignant organisms are the streptococci seen in peritonitis and recent injuries.

The author thinks we may discard the four indications for drainage already given. Drainage does not lower the primary mortality, because it neither protects against infection nor does

it remove it. The infection is usually generalized before drainage is begun.

On the other hand, drainage involves danger from secondary infection. Apart from thorough sepsis and recognition of indications, the principal means of safety is the dry technique and elevation of the pelvis. The peritoneum and neighboring organs must be carefully protected. Foci of pus must be carefully removed intact. If such are opened, the pus must be completely removed with gauze pads. The peritoneum, and especially Douglas's pouch, must be carefully cleaned and left dry. Perforations of gut or bladder must at once be closed by a double line of sutures, and, if possible, covered by neighboring serosa. If the bladder is sutured, permanent catheterization must be kept up for a week. Douching the peritoneum is dangerous and useless. The author completely closes the belly after all his operations, with the following exceptions: He packs cases where there is uncontrollable hæmorrhage from surfaces and drains perityphlitic abscesses, because in these cases there is liable to be a renewed secretion of very virulent matter. In doubtful cases of deep-seated pelvic suppuration in women, vaginal drainage is more reasonable than suprapubic. Zweifel records 140 cases of pyosalpinx operated on without drainage, and with only one death.—*Zeitschrift für Geburtshülfe und Gynäkologie,* lxviii, Heft 2.

II. Operative Treatment of Acute Infectious Cholecystitis. By Dr. Körte (Berlin). Körte has operated 135 times for suppurative inflammation of the gall-bladder and ducts. In seventeen of these the operation was demanded during the attack of acute infectious cholecystitis, when stones were found in sixteen. In seven cases the gall-stones were latent, in five the troubles they occasioned were diagnosed wrong (gastronephritic colic or perityphlitis), in four the gall-stone colic was correctly diagnosed. The acute infectious cholecystitis began suddenly with chill and fever. Körte believes that closure of the cystic duct

formed a closed infected cavity, led to increased virulence of the bacteria and to increased tension, and thus to necrosis and peritonitis. Twice the acute cholecystitis supervened on a strangulation of gut in a hernia. Peritoneal infection manifested itself twice by the presence of turbid serous fluid, once by pus. The symptoms of peritonitis dominated the cases. Removal of the gall-bladder and flushing of the peritoneum led to recovery. In threatened perforation from necrosis of a portion of gut, Körte obtained protection by the use of omentum.

Like Riedel, the author found in these acute cases that the gall-bladder was inflamed, thickened, and its serosa overlaid with exudate. Abscesses might exist in the wall or between the bladder and liver. The mucosa was always softened, ulcerated by stone pressure. Spontaneous cure is possible, but improbable. The dangers from sepsis, suppuration of liver, and peritonitis are so great that operation is obligatory; the more so as even in the acute stage, on the second to the ninth day of the disease, general infection of the peritoneum may be prevented. Of seventeen patients three died, and these from complications, viz., two from myocarditis and nephritis and one from diabetes. In no case was there infection of the peritoneum (general (?)).

Körte has become a warm advocate of operation in the acute stage, and has himself performed cystotomy with drainage six times, resection with drainage and tamponade five times, and cystectomy with hepaticus drainage six times. The last operation is highly commended because it removes the focus of disease, discloses abscesses of the liver, and prevents stones being left behind.—*Versammlung deutscher Naturforscher und Aerzte, Sektion für Chirurgie,* 1902; *Centralblatt für Chirurgie,* November 29, 1902.

JOHN F. BINNIE (Kansas City).

III. Seven Hundred and Twenty Laparotomies for Gall-Stones. By HANS KEHR (Halberstadt). Kehr's first operation

was performed in 1890, and since that time he has performed 720 operations upon 655 patients. In order to comprehend this subject, he warmly urges the study of the pathology of this affection. This can best be done during operations. He believes that calculi *per se* cause no symptoms. It is only after infection has been added that their presence manifests itself. In 80 to 90 per cent. of his cases jaundice was absent in cases where calculi were lodged in the gall-bladder or cystic duct. Even in common duct stones it was absent in over one-third. Small stones as well as those which attain the size of a walnut remain latent for weeks and even months in the common duct. Both the colic and jaundice are to be ascribed to inflammatory changes in the majority of cases of gall-stones.

A palpable tumor in the region of the gall-bladder is only present in acute, rarely in chronic cases.

Nature's attempts to cure the disease spontaneously are not always the best. He found fistulæ between the alimentary canal and gall-bladder in thirty cases, and in a number of these an ascending infection had occurred. A cure of a case of gall-stones through internal medication seldom occurs. In those cases where such a cure was supposed to have occurred, there had simply been a transition to a latent stage. The Carlsbad waters can create such a quiescent condition.

It is possible to make an exact anatomical diagnosis from the physical findings, the history, and careful observation.

We must be able to determine the location of the calculi and differentiate cholecystitis from cholangeitis, circumscribed pericholecystitis from diffuse peritonitis. In cases of chronic closure of the common duct one must be able to distinguish stones from tumors as the cause. In the majority of his cases he is now able to make a special diagnosis.

To be able to form indications for and against operation is another step in advance. He does not operate on every case which he examines. The presence of calculi is not of as great

value as an indication for operation as their sequelæ, for example, inflammation and common duct closure.

In 90 per cent. of the cases of chronic closure of the common bile-duct the stones were too large to have ever been able to pass through the papilla.

He considers operation indicated in acute seropurulent cholecystitis. It is less dangerous than an expectant treatment, if only the pus is evacuated and then the stones removed at a subsequent sitting. His conclusions are:

1. He believes that the medical treatment produces a latent condition in many cases, and in some even a cure.

2. Riedel's dictum to remove the stones as soon as discovered holds now as well as in the past, for it protects against many of the dangerous sequelæ of gall-stones (perforation, cholæmia, carcinoma). Such an early operation cannot always be done in practice, hence Riedel's advice is of little practical value.

3. If the attacks are mild and there is complete latency between them, he advises against an operation.

4. Acute closure of common duct is with but few exceptions to be treated medically. If the symptoms of cholangeitis become prominent, and the icterus is accompanied by emaciation and anorexia for some time, an operation is to be considered.

5. Frequent colics without icterus or passage of stones, if they cause invalidism, are an indication for operation.

6. Cases of icterus with passage of stones during each attack are an indication for medical treatment, but if they are very frequent and the patient seems to be failing, and there is no prospect of all the stones being passed, he would operate.

7. Hydrops and empyema of the gall-bladder as well as pericholecystic suppuration are in the province of the surgeon.

8. Chronic closure of the common duct should not be allowed to exist too long if a Carlsbad cure has been of no avail.

9. Patients with gall-stones who have become victims of

morphine should be operated under all circumstances. During the after-treatment the morphine habit can be cured.

10. Only early operations are of any benefit in carcinoma of the gall-bladder, and these are seldom operated upon early.

11. Patients with chronic icterus, which are not dependent upon a stone in the common duct or incurable diseases of the liver, should be operated upon within three months at the latest, since one will often find a chronic interstitial pancreatitis instead of a suspected carcinoma of the head of the pancreas.

12. Both patient and surgeon will be more easily influenced to operate when a gall-bladder tumefaction, an enlarged liver, jaundice, and fever are present. But even in the absence of local findings, the continuance of severe symptoms is an indication *per se*. One often finds in such cases adhesions without stone.

13. The sequelæ of gall-stones, such as suppurative angiocholitis, abscess of the liver, perforative peritonitis, subphrenic abscess, severe pyloric and duodenal stenoses as well as ileus due to gall-stones all demand surgical interference.

14. Every case is a unit in itself. Obese patients do not bear operations well. Chronic nephritis, diabetes, arteriosclerosis, pulmonary and cardiac diseases are a contraindication to operation.

Kehr has performed 720 laparotomies upon 655 patients,—536 of these were women, 119 men. An interesting fact in the table accompanying the article is that of the first 360 operations the majority were cholecystostomies. In the last 360 cases cholecystectomy and drainage of the hepatic duct predominate. Biliary fistulæ no longer follow operations. It may be necessary at times to have temporary drainage of the gall-bladder, but a permanent fistula can be avoided.

In the first 360 cases, 54 per cent. were cholecystostomies; 20 per cent. cholecystectomies; 13 per cent. choledochotomies, and 1 per cent. hepatic duct drainage.

In the last 360 cases there were only 20 per cent. cholecys-

tostomies; 64 per cent. cholecystectomies; 6 per cent. choledochotomies, and 41 per cent. hepatic duct drainages. From this can be deduced that Kehr has

1. Become more radical in his operations.

2. Operated more severe and advanced cases in the last four years.

3. That he restricts the early operations more than formerly.

He prefers cystostomy for all acute processes. In interval operations he believes that the gall-bladder should be extirpated. In removing stones from the common duct, drainage is to be preferred to suture. On account of the fact that stones may remain latent both in the common and hepatic ducts, he has made it a rule in the past year to drain the hepatic duct, and thus avoid recurrence. The mortality of cholecystectomy with hepatic duct drainage is not over 2 to 3 per cent. Adhesions around the neck of the gall-bladder can give rise to the same symptoms as gall-stones. To avoid recurrence in these cases, it is best to extirpate the gall-bladder.

About 10 per cent. of the cases which consult a surgeon have carcinoma. Such patients have no symptoms until the tumor is palpable, and then operation is of no avail. Such a carcinoma is often associated with an empyema of the gall-bladder. In 274 cholecystectomies it was only necessary to reopen the abdomen in one case. At times it is necessary to leave artery forceps *in situ* on account of the inaccessibility of the deeper vessels.

Twelve per cent. of the cases were complicated by gastric affections, principally a stenosis, for which he warmly recommends gastro-enterostomy in preference to other methods (pyloroplasty). In fifteen cases the diseased appendix was removed. He recommends examining the appendix in every case. He makes it a rule to palpate the pancreas, and in case of a diseased organ prefers an anastomosis of the stomach and gall-bladder to any other operation. He anchors the liver (hepatopexy), if hepatoptosis is present, in order to obliterate the subphrenic space.

In 720 laparotomies for gall-stones, his mortality was 15.5 per cent. If one excludes complicating operations such as gastro-enterostomy and hopeless cases such as carcinomata and cholangeitis, the mortality would only be 3.5 per cent.

Cholecystostomy was followed by 2.1 per cent., cholecystectomy by 3.1 per cent., and drainage of the common and hepatic ducts by 6.5 per cent. mortality. During the past two years he has lost only 2 per cent. of the common duct cases, owing to more rapid technique, which he considers absolutely essential in this operation. Cholecystectomy is only 1 per cent. more dangerous than cholecystotomy, and has the advantage of being more radical.

If the gall-stone operations are complicated by gastro-enterostomy, the mortality rises to 21 per cent. If complicated by inoperable carcinoma or cholangeitis, the mortality is 97 per cent. Even the 3 per cent. recoveries in these cases justify operation. The average mortality of uncomplicated cases of gall-stones is not more than 2 per cent.

The danger of hæmorrhage is reduced by the use of chloride of calcium. He formerly taught that patients over sixty should not be operated, but he now believes that this is no objection. Similarly chronic icterus due to closure of common duct is no objection, because in many cases a chronic interstitial pancreatitis is thus relieved, as Mayo Robson has shown. He advocates the combination of drainage of hepatic duct with cholecystectomy as the normal method. He opens the common duct in its supra-duodenal portion, and then inserts a drainage tube a distance of about two inches into the hepatic duct, and the entire bile is led to the surface for about fourteen days, without interfering with digestion in the least. This procedure is much less difficult than a suture of the common duct and not so apt to overlook stones.

He places gauze tampons around the tube leading to the hepatic duct. He has never observed fistula or stenosis or ascending cholangeitis following hepatic duct drainage.

One is less apt to have recurrences with radical operations. He has never observed a genuine recurrence. Frequently stones are overlooked or colics due to adhesions follow operations. This is far less likely if the gall-bladder is extirpated.—*Münchener medicinische Wochenschrift*, Nos. 41, 42, and 43, 1902.

DANIEL N. EISENDRATH (Chicago).

IV. Injuries of the Spleen and Liver. By H. ROESER (Carlsruhe). The injuries of the spleen are classified by the author as laceration of the capsule, subcapsular hæmatoma, and rupture of the spleen, any one of which may be accompanied by injury to other abdominal or thoracic viscera.

For the lesser injuries, sutures deeply passed into the parenchyma may control the bleeding, or the Pacquelin cautery or vaporization. Where the laceration is extensive, extirpation must be practised. Of 135 ruptured spleens, 104 died; ninety without operation. Of thirty subjected to the operation of extirpation, sixteen recovered,—53 per cent.

The consequences of splenectomy are a transient diminution of the red blood-cells, increase of the leucocytes. The thyroid is not vicariously enlarged. The lymph nodes and the bone marrow show increased hæmatogenic properties. There is a diminution of the hæmoglobin. Splenectomy is followed by no permanent lesions.

A median laparotomy is favored as the best route to gain access to the spleen. A saline intravenous infusion should precede the operative interference. The vessels of the hilum should be separately tied, and preferably with silk, to guard against slipping. Two cases are narrated of subcutaneous rupture of the spleen for which splenectomy was practised.

For injuries of the liver, suture remains as the best procedure to control hæmorrhage. Catgut and wholly rounded needles had best be employed. The suture should embrace a wide extent of liver substance. If the laceration be very extensive,